



HVT 300-DX

Fail-safe High Voltage Monitor for up to 1.000V DC



Application

Electrification of numerous industries is prevalent. This is especially true for the automotive industry. Voltage levels of next generation powertrains or batteries in electric cars and trucks are increasing. Currently, 800-1200V is made standard to achieve higher efficiency and faster charging time. This poses challenges to the safety of workers and equipment during manufacturing and testing of high voltage powertrain components.

Typically, the voltage transmitter HVT 300-DX is used in applications which require safety measures to cope with the risk of high voltages. This can be e.g., controlling the access to an automotive test bed or simulation of high voltage powertrain components using a failsafe voltage threshold (for example 50 VDC). Due to the flexible software configuration, the HVT 300 series is suitable for numerous industries and various electrification components.

Scope of use

- Battery
- Battery Management System
- Motor
- Inverter
- Climate Aggregate
- Charger
- Compressor
- HV-Supply

Safety Features

Featuring a safety-by-design approach, the HVT 300-DX provides a wide range of diagnostic functions. In order to create a safety loop, the desired output must be evaluated in conjunction with one of the two diagnostic relays REL3/REL4. This way, two individually configurable safety outputs can be created, for which either the relays REL1/REL2 or the 4...20mA analog output are available.

Main Benefits

- Failsafe voltage monitoring
- Simple software configuration via USB or Modbus RTU
- 0-1000V DC measurement range
- Redundant architecture
- Robust design with high dielectric strength
- SIL2 according to IEC/EN 61508
- Two individual safety outputs
- LED status: Power, Error, Alarm
- 10-year proof test interval

Technical Data	
Certificate	SIL 2 according to IEC 61508
Measurement range	0.. 1000V DC
Input Resistance	12 MΩ each channel
Analog Output	0/4...20 mA
Load	Max 500 Ω at 22mA
Accuracy	< 0,5%
Contact outputs	Normally Open
Switching Power	Max 62,5 VA / Max 30W
Switching Voltage	Max 125VAC/110VDC
Switching Current	Max. 1A
Contact Material	AG Pd + 10 μAu
Status LEDs	Power: Green Error / SIL Alarm: Red REL1/REL2: Yellow
USB Interface	USB 2.0
RS485 Interface	Half duplex, no scheduling
Baud rate	9600 bps
Device Address	1-248
Supply	24VDC (20...30VDC)
Power Consumption	Max. 1,9W
Temperature	-10°C...+60°C
Storage / Transport	-20°C...+70°C
Perm. Humidity	10%...90% r.H no cond.
Max. operating Altitude	<2000m above mean sea level
Temperature Coefficient	<0,01%/K (max) <0,005%/K (typical)
Galvanic isolation	4,3 kV AC test voltage
Overvoltage category	CAT II: 1000V Pollution Degree 2
PCB Material	FR4
Housing Material	Polyamide
Protection Class	IP20
Flammability UL94	V0
Mounting type	35mm DIN rail

Safety Properties	FMEDA
Category	SIL 2
Device type	Type B
HFT	0
SFF	95 %
DC	89 %
Safe failure rate	331 FIT
Safe detected failure rate	0 FIT
Safe undetected failure rate	331 FIT
Dangerous failure rate	362 FIT
Dangerous detected failure rate	325 FIT
Dangerous undetected failure rate	37 FIT

